WIDE HOLLOW RESERVOIR

Introduction

Wide Hollow Reservoir is an intermediate-sized off-stream reservoir of the Escalante RIver in southern Utah.

The reservoir shoreline is primarily privately owned with a State Park located on the southeastern corner. The Escalante State Park is noted for colorful deposits of mineralized wood and dinosaur bones. Currently there are no restriction on public access.

Defined beneficial uses include: water recreation excluding swimming, propagation of cold water species of game fish and aquatic life, and agricultural needs.

Characteristics and Morphometry

Lake elevation (meters / feet)	1,807.7 / 5,931
Surface area (hectares / acres)	58.7 / 145
Watershed area (hectares / acres)	70,822 / 175,000
Volume (m^3 / acre-feet)	
capacity	2,866,658 / 2,324
conservation pool	0
Annual inflow (m^3 / acre-feet)	
Retention time (years)	
Drawdown (m^3 / acre-feet)	
Depth (meters / feet)	
maximum	7 / 23
mean	4.9 / 16
Length (meters / feet)	975.3 / 3,200
Width (meters / feet)	671 / 2,200
Shoreline (km / miles)	2.59 / 1.6

Location

County	Garfield
Longitude / Latitude	111 38 13 / 37 47 14
USGS Map	Wide Hollow Reservoir, Utah 1964
DeLorme's Utah Atlas and Gazetteer™	Page 19, A-6
Cataloging Unit	Escalante River (14070005)

Recreation

Wide Hollow Reservoir is a short distance from U-12 and is accessible via a gravel road. From downtown Escalante, travel 1.5 miles west and turn north. The reservoir is 3/4 miles north of U-12.

Fishing, waterskiing, boating and swimming are the

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primary uses of the reservoir. There is an improved public boat ramp at the reservoir. Usage is fairly heavy.

Escalante Petrified Forest State Park is the only public camping facility in the area. Access is from U-12 between downtown Escalante and Wide Hollow Reservoir. It has 24 campsites, vault toilets and picnic areas. Usage fees are collected.

Limnological Data

Data sampled from STORET site: 595386

Surface Data	1981	1990	1992
Trophic Status	E	M	M
Chlorophyll TSI	-	35.51	39.59
Secchi Depth TSI	50.01	51.94	45.16
Phosphorous TSI	64.35	51.53	46.97
Average TSI	57.18	46.33	43.91
Chlorophyll a (ug/L)	-	1.7	2.5
Transparency (m)	-	1.8	2.8
Total Phosphorous (ug/L)	30	27	20
pH	-	9.3	8.8
Total Susp. Solids (mg/L)	<5	4	<3
Total Volatile Solids (mg/L)	-	-	1
Total Residual Solids (mg/L)	-	-	2
Temperature (°C / °f)	-	21/69	21/69
Conductivity (umhos.cm)	-	528	433
Water Column Data			
Ammonia (mg/L)	0.05	0.03	0.03
Nitrate/Nitrite (mg/L)	0.12	0.04	0.15
Hardness (mg/L)	206	207	174
Alkalinity (mg/L)	188	173	157
Silica (mg/L)	-	-	10.5
Total Phosphorous (ug/L)	35	27	16
Miscellaneous Data			
Limiting Nutrient	N	N	N
DO (Mg/l) at 75% depth	10.2	4.4	8.4
Stratification (m)	NO	NO	NO
Depth at Deepest Site (m)	5	1.0	4.0

Watershed Description

Wide Hollow Reservoir is in Wide Hollow, a small valley north of the Escalante River. The area is arid desert on the east side of the Escalante Mountains and south of the Aquarius Plateau. Steep, forested slopes rise from Wide Hollow for 5-10 miles up to these high plateaus.

While the reservoir is located 1/2 mile north of the Escalante River, it receives most of its water from the river via a short canal. The natural watershed of Wide Hollow composes only 7% of the total watershed area.

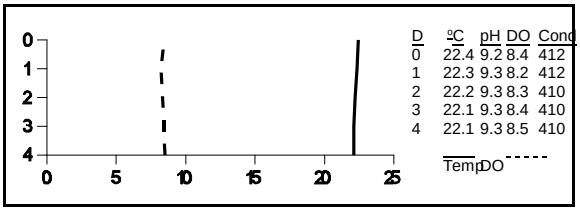
The watershed high point, Mud Springs Point, is 3,283 m (10,770 ft) above sea level, thereby developing a complex slope of 5.8% to the lake. The average stream gradient above the reservoir is 5.6% (298 feet per mile).

The vegetation communities are comprised of pinyon-juniper, grass-sage, saltbrush, shadscale-greasewood, mahonia, mountain mahogany, grass-forbes, pine, aspen, spruce-fir and oak. The watershed receives 31 - 51 cm (12 - 20 inches) of precipitation annually with a frost-free season of 100 - 120 days at the reservoir.

Land use is multiple use and recreation. WHile the upper watershed is in Dixie National Forest, low elevation areas surrounding the reservoir is privately owned, and the region between the lowlands and the national forest boundary is BLM land.

Limnological Assessment

The water quality of Wide Hollow Reservoir is good. It is considered to be hard with a hardness concentration value of approximately 196 mg/L (CaCO3). Those parameters that have exceeded State water quality standards for defined beneficial uses are temperature, pH, total phosphorus and dissolved oxygen. All of these exceedences are sporadic at various times of the year and are not present on a regular basis. Temperatures increase in late summer and exceed the standard established for a cold water fishery (20°C). These elevated values throughout the water column due to the shallowness later in the year could be responsible for some fish kills that are observed. On August 20, 1992 the maximum depth of the reservoir was 4 meters with temperatures in excess of 22°C throughout the water



column. The rise in pH values is in part due to photosynthetic activity and elevated total phosphorus concentrations and reduced dissolved oxygen levels are only sporadic in the water column and do not appear to impair those beneficial uses defined for the reservoir.

Data suggest that the reservoir is currently a nitrogen limited system with TSI values indicating that the reservoir is mesotrophic. The reservoir does not typically stratify due to the shallow nature of the reservoir.

According to DWR an occasional summer fish kill does occur probably due to elevations in water temperatures. The reservoir was treated for the removal of nongame fish in 1981 and 1989. The reservoir is managed to support a population of rainbow trout (*Oncorhynchus mykiss*). Current stocking reports indicate that DWR stocks the reservoir with 5,000 catchable rainbow trout annually.
Heavy macrophytes have been documented to be present in the shallow areas of the reservoir.

Phytoplankton in the euphotic zone include the following taxa (in order of dominance)

Species	Cell Volume (mm^3/liter)	% Density By Volume
Unknown spherical green alga	0.685	29.26
Ceratium hirundinella	0.936	16.26
Trachelomonas sp.	0.889	15.45
Tetraedron minimum	0.528	9.17
Pennate diatoms	0.456	7.92
Dinobryon divergens	0.086	1.49
Centric diatoms	0.062	1.08
Scenedesmus quadricauda	0.050	0.87
Euglena sp.	0.033	0.58
Scenedesmus bijuga	0.033	0.58
Oscillatoria sp.	0.030	0.52
Staurastrum gracile	0.017	0.30
Oocystis sp.	0.009	0.15
Mougeotia sp.	0.006	0.10
Total	4.785	
Shannon-Weaver [H']	1.93	
Species Evenness	0.71	
Species Richness	0.63	

The phytoplankton community is dominated by the presence of green algae and flagellates.

Pollution Assessment

Nonpoint pollution sources are: sedimentation and nutrient loading from grazing, and wastes or litter from recreation. Cattle graze in the watershed and in the vicinity of the reservoir.

There are no point pollution sources in the watershed.

Beneficial Use Classification

The state beneficial use classifications include: boating and similar recreation (excluding swimming) (2B), cold water game fish and organisms in their food chain (3A) and agricultural uses (4).

Information

Bureau of Land Management, Escalante Office	826-4291
New Escalante Irrigation Company	
Five County Association of Governments	
Division of Wildlife Resources	538-4700
Division of Water Quality	538-6146